



US005310764A

United States Patent [19][11] **Patent Number:** **5,310,764****Baranowitz et al.**[45] **Date of Patent:** **May 10, 1994**[54] **TREATMENT OF AGE RELATED MACULAR DEGENERATION WITH BETA-CAROTENE**[76] **Inventors:** **Steven Baranowitz**, 85 Tices La. - Apt. 39, East Brunswick, N.J. 08816;
Andrew Brookner, 25 Spenser Dr., Short Hills, N.J. 07078[21] **Appl. No.:** **880,709**[22] **Filed:** **May 8, 1992**[51] **Int. Cl.⁵** **A67K 31/07**[52] **U.S. Cl.** **514/725; 514/912**[58] **Field of Search** **514/725, 912**[56] **References Cited****PUBLICATIONS**

Health Periodicals Abstract of Western Journal of Medicine, vol. 155 Issue No. 4, Oct. 1991.

Kennekens et al. Federal Research in Progresss. (The Research started on 1984).

Steven A. Baranowitz, "Regeneration, Neural Crest Derivatives and Retinoids: A New Synthesis," *J. Theor. Biol.*, 140: 231-242, 1989.Garry J. Handelman et al., "Carotenoids in the Human Macula and Whole Retina," *Investigative Ophthalmology*, 29:850-855, 1988.Richard W. Young, "Solar Radiation and Age-related Macular Degeneration," *Survey of Ophthalmology*, 32:252-269, Jan.-Feb., 1988.Richard W. Young, "Pathophysiology of Age-related Macular Degeneration," *Survey of Ophthalmology*, 31:291-306, 1987.Susan B. Bressler et al. "Relationship of Drusen and Abnormalities of the Retinal Pigment Epithelium to the Prognosis of Newvascular Macular Degeneration," *Arch Ophthalmol*, 108:1442-1447, Oct., 1990.Neil M. Bressler et al., "Age-related Macular Degeneration," *Survey of Ophthalmology*, 32:375-413, May--Jun., 1988.Howard Schatz et al., "Atrophic Macular Degeneration Rate of Spread of Geographic Atrophy and Visual Loss," *Ophthalmology*, 96:1541-1551, 1989.J. P. Sarks et al., "Evolution of Geographic Atrophy of the Retinal Pigment Epithelium," *Eye*, 2:552-577, 1988.

D. Pauleikhoff et al., "Drusen as Risk Factors in

Age-Related Macular Disease," *American Journal of Ophthalmology*, 109:38-43, Jan., 1990.W. T. Ham Jr. et al., "Basic Mechanisms Underlying the Production of Photochemical Lesions in Mammalian Retina," *Current Eye Research*, 3:165-174, 1984.M. L. Katz et al., "Fluorescent Pigment Accumulation in Retinal Pigment Epithelium of Antioxidant-Deficient Rats," *Investigative Ophthalmology*, 17: 1049-1058, 1978.Martin L. Katz et al., "Relationship Between Dietary Retinol and Lipofuscin in the Retinal Pigment Epithelium," *Mechanisms of Ageing and Development*, 35:291-305, 1986.Martin L. Katz et al., "Development of Lipofuscin--Like Fluorescence in the Retinal Pigment Epithelium in Response to Protease Inhibitor Treatment," *Mechanisms of Ageing and Development*, 49:23-40, 1989.C. Kathleen Dorey et al., "Cell Loss in the Aging Retina," *Investigative Ophthalmology*, 30: 1691-1699, 1989.Glenn L. Wing et al., "Topography and Age Relationship of Lipofuscin Concentration in the Retinal Pigment Epithelium," *Investigative Ophthalmology*, 17, 601-607, 1977.Sheila K. West et al., "Exposure to Sunlight and Other Risk Factors for Age-Related Macular Degeneration," *Arch Ophthalmol*, 107:875-879, Jun., 1989.

Mike Boulton et al., "The Formation of Autofluores-

(List continued on next page.)

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ABSTRACT

According to the present invention, there are provided methods for treating age related macular degeneration in a mammal; for preventing impairment of the vision or for improving impaired vision of a mammal whose eye has drusen; for preventing formation or growth of drusen in the eye of a mammal; and for reducing the number or the size of drusen or for fading drusen without resultant areas of retinal atrophy, without resultant impairment of vision, or without a combination of the foregoing in the eye of a mammal. Beta-carotene in appropriate amounts is administered to the mammal.

19 Claims, 1 Drawing Sheet